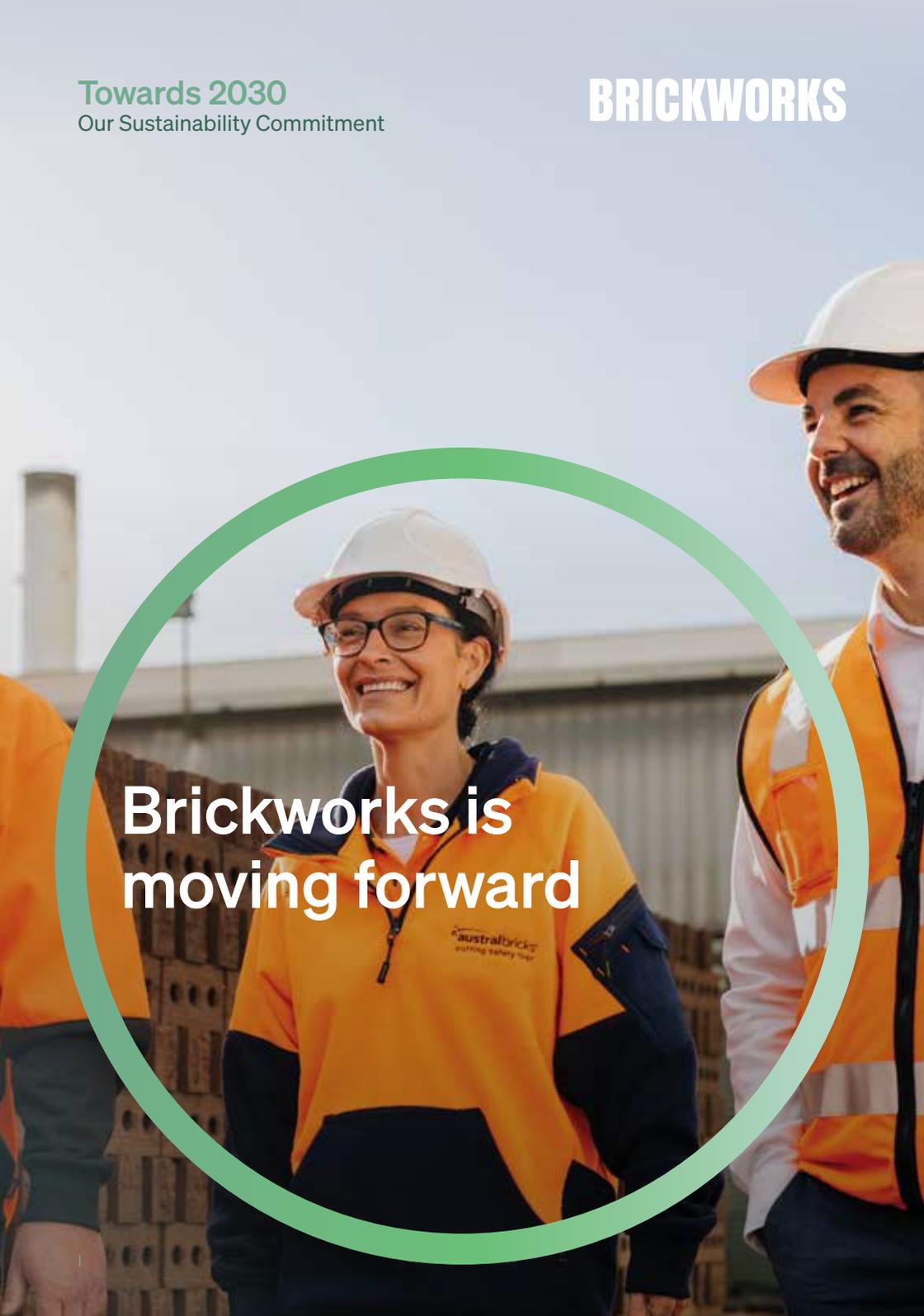


Towards 2030
Our Sustainability Commitment

BRICKWORKS



**Brickworks is
moving forward**

australbricks
putting safety first

**We've achieved a lot but
we're not stopping on
our journey towards a
sustainable future.**



Our Towards 2030 carbon target:

Brickworks is committed to an additional 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from baseline FY22, across combined Australian and North American operations.

Our emission reduction performance in Australia:

We have already made significant progress reducing our emissions by 46% since 2006 in Australia.



UTAS Rivers Edge

The Embodied Carbon Equation

As Australia's leading building products manufacturer, we are committed to efforts that drive sustainability across the industry. A building is long term – if you only focus on reducing upfront carbon, you aren't truly addressing sustainability.



Hyde Park House, by Robeson Architects

Therefore, any net zero carbon strategy requires focus on two key areas:

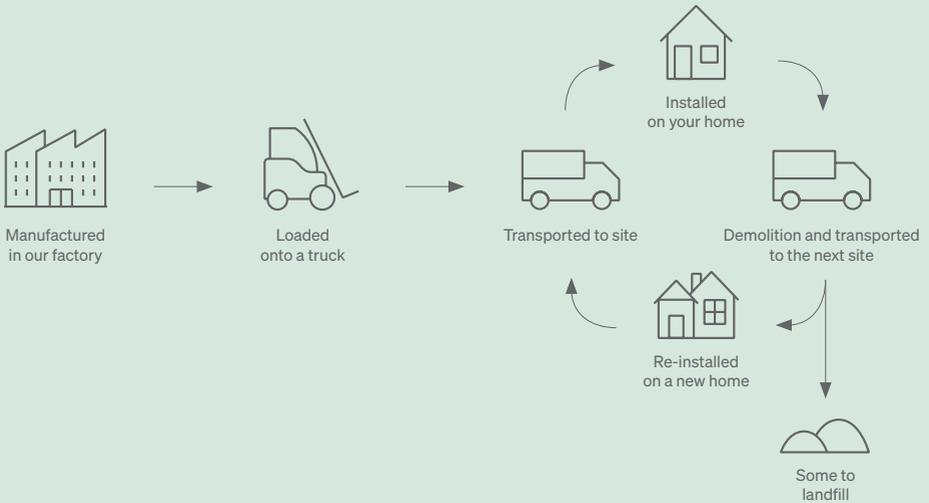
1. Lifespan embodied carbon

Maintaining a building over its lifetime significantly adds to the total embodied energy requirement of building materials. This means that when considering embodied energy, you must look at the entire sum over the lifetime of a building.

2. Operational carbon

Currently, operational carbon accounts for approximately 80% of a building's whole-of-life carbon footprint. Constructing energy efficient buildings has the potential to substantially and permanently reduce the amount of energy consumed in heating and cooling spaces, which means that it is essential to account for and focus on operational carbon, in addition to embodied carbon.

The brick life cycle



Achievements snapshot

Take a look at these useful facts about our Sustainability achievements to date across our Australian and North American operations.



46%

reduction in carbon emissions since 2006

→ IN AUSTRALIA



18%

improvement in natural gas efficiency from acquisition of Glen-Gery in FY23 (since calendar year 2019)

→ IN NORTH AMERICA



221,000+

tonnes lower annual carbon emissions compared to 2006

→ IN AUSTRALIA



72%

increased factory utilisation in FY23 (from 46%). A more modern and fuel-efficient fleet, with the average age of kilns reduced to approximately 20 years (from more than 40 years)

→ IN NORTH AMERICA



\$1.6m+

research grant to collaborate with Queensland University of Technology (QUT), to create a lower embodied carbon concrete mix using local resources and waste products

→ IN AUSTRALIA



\$400m+

invested since 2006 in equipment upgrades, operational improvements, and carbon reduction strategies

→ IN AUSTRALIA



11%

use of biofuels in energy mix in FY23

→ IN AUSTRALIA



100 yrs

colourfast and durability warranty on our bricks

→ IN AUSTRALIA



216,000

square metres of land progressively rehabilitated in FY23

→ IN AUSTRALIA AND NORTH AMERICA



10 yrs

of our Longford operation being certified carbon neutral

→ IN AUSTRALIA



20%

of recycled content is now used in place of raw materials in FY23

→ IN AUSTRALIA



10-20%

of total energy used in the manufacturing of masonry products at our Oakdale East Masonry and Rockhampton site is solar energy

→ IN AUSTRALIA



70,000+

tonnes of carbon avoided since 2013, at our Longford Operation, through the use of renewable fuels

→ IN AUSTRALIA



Oculus, by SJB

8 Bowral Bricks – Bowral 300 in Bowral Blue

We're moving forward

The destination is clear – a greener, cleaner and more sustainable future. It's a journey that's not going to happen overnight but it's one that we're already moving towards, in a number of positive ways.

Turning what might have otherwise been big challenges into big opportunities we're putting our efforts behind three key sustainability pillars:

① **Sustainable Manufacturing**

② **Sustainable Products**

③ **Sustainable Built Environment**

We've got the momentum and the team to keep us heading in the right direction. The commitment to making real and positive change. Learn more about the progressive steps we're taking towards a more sustainable future.

①

Sustainable Manufacturing



Moving forward with sustainability at work

Some of the most important steps towards a more sustainable future start right here, with how we operate our own business. Building on our achievement of creating Australia's first (and only) certified carbon neutral brick operation, we're continuing to find new ways to evolve and adapt our manufacturing practices.

Reducing our Scope 1 and 2 carbon emissions is as essential as it's ever been – and we're investing in a range of initiatives including alternative fuel sources and equipment upgrades. Our Horsley Park and Longford plants are both avoiding tens of thousands of tonnes of carbon emissions each year. We're increasing the amount of localised and recycled materials to decrease the amount of mined materials required. And we're continuing to invest into developing feasible renewable biomethane opportunities.

221,000+

tonnes lower annual carbon emissions compared to 2006

→ IN AUSTRALIA

46%

reduction in carbon emissions since 2006

→ IN AUSTRALIA

\$400m+

invested since 2006 in equipment upgrades, operational improvements, and carbon reduction strategies

→ IN AUSTRALIA

① Sustainable Manufacturing Fast Facts



1. Reducing Carbon Emissions

In Australia, Scope 1 and Scope 2 carbon emissions have followed a general downward trend, with a 46% decrease compared to the base year FY 2006.

This decrease is supported by an investment of over \$400 million, and is attributable to:

- Efficiencies gained from alternative fuels,
- Manufacturing consolidation,
- Equipment upgrades, and
- Operational improvements.

This is underpinned by our stretch target for a 10% increase in gas efficiency at Austral Brick plants by 2030.

2. Avoiding Carbon Emissions

In FY23 alone, Brickworks avoided 7,700 tonnes of carbon emissions in our Horsley Park Plant through the use of landfill gas as fuel – that’s the equivalent to the carbon used to power 1,300 homes in a year. In FY23 alone, Brickworks avoided 6,260 tonnes of carbon emissions in our Longford Plant through the use of waste biomass as fuel – that’s the equivalent to removing ~2,100 cars from the road each year.



3. Increasing Recycled Materials

In FY23 approximately 20% of recycled content was used in replace of raw materials in Australia, which means:

- Lowered amount of mined materials required.

4. Using Localised Materials

Using local materials means less carbon miles associated with transporting long distances. We have a strong focus on local manufacturing.

5. Rehabilitating Land

During FY23, Brickworks progressively rehabilitated 47,400 m² of land, and transitioned 443,000 m² land to industrial estates in Australia. 168,875 m² of land was progressively rehabilitated in North America.

① Sustainable Manufacturing Fast Facts



6. Increasing Biofuels

In FY23, alternative biofuels made up 11% of Brickworks Australian energy mix. Biofuel sources include landfill gas and sawdust.

Brickworks has been delivering progress against our existing carbon transition target, to invest in the transition to the hydrogen fuel economy. Brickworks is enhancing this target, to also include the target for continued investment into developing feasible renewable biomethane opportunities.

7. Achieving Product Certifications

Brickworks is proud to be Australia's first clay brick and paver manufacturer to achieve carbon neutral certification through Climate Active for our operation in Longford Tasmania.



8. Certified Carbon Neutral Operations

We are proud to have celebrated 10 years of our Longford operation being certified carbon neutral.

- Over 70,000 tonnes of carbon emissions avoided over 10 years through the use of renewable fuels.
- Over 50,000 tonnes of carbon emissions offset over 10 years.

9. Investing in Research

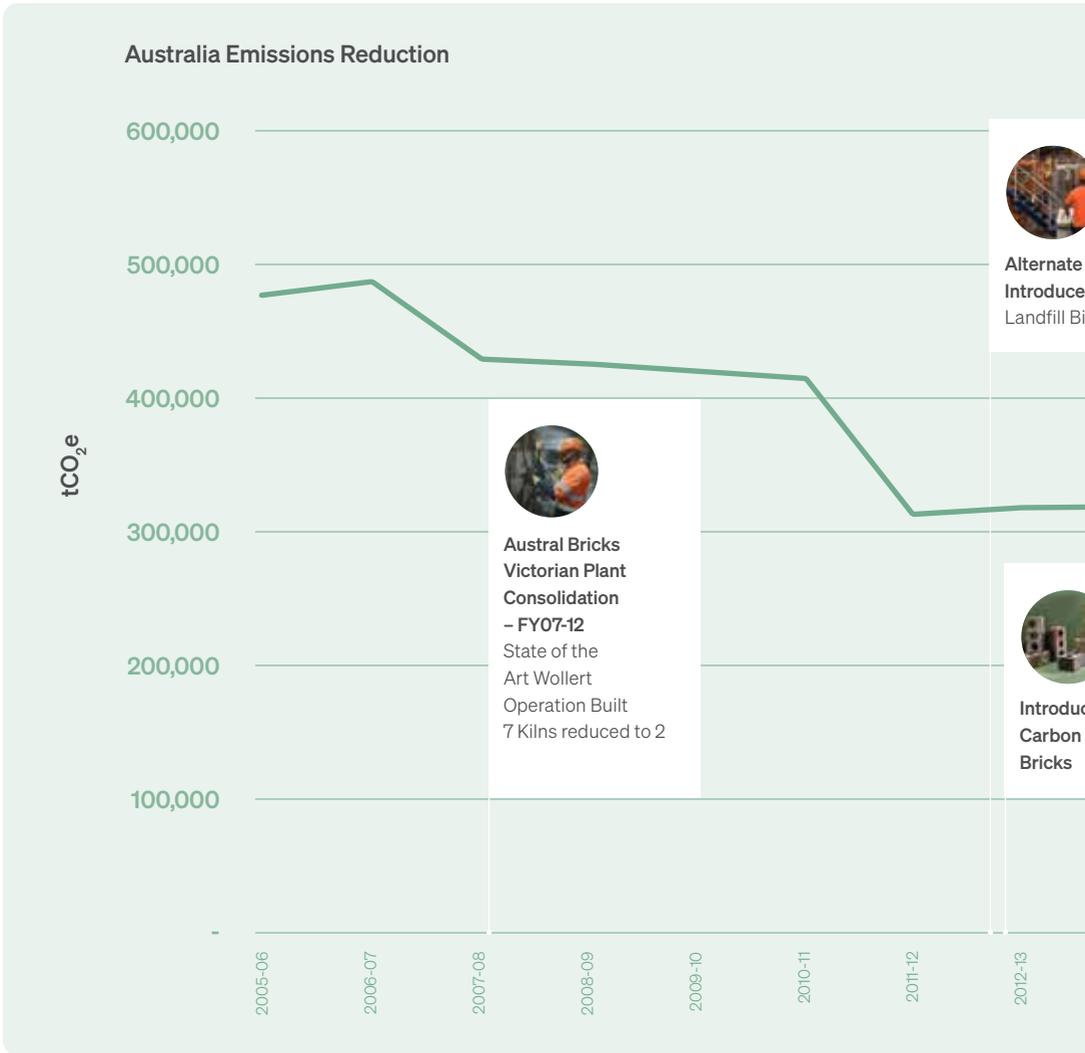
As an industry leader using 11% bioenergy in manufacturing in Australia, we understand the critical role renewable bioenergy can have in producing low-carbon products. We're investing into developing feasible renewable biomethane opportunities and our sustainable product innovation strategies.

The Australian Renewable Energy Agency estimates bioenergy could make up 33% of industrial heat processing requirements by 2030.

By 2030, Brickworks and our partners will invest over \$22.6 million into research and development into our innovation focus areas including: the thermal mass benefit of products, lightweighting, raw material optimisation to reduce embodied carbon and increase recycled content, sustainable design elements and product innovation.

Our emission reduction performance in Australia

Since its inception, Brickworks has invested in the latest kiln, equipment and manufacturing technologies to improve productivity, product quality and energy efficiency.



\$400m+

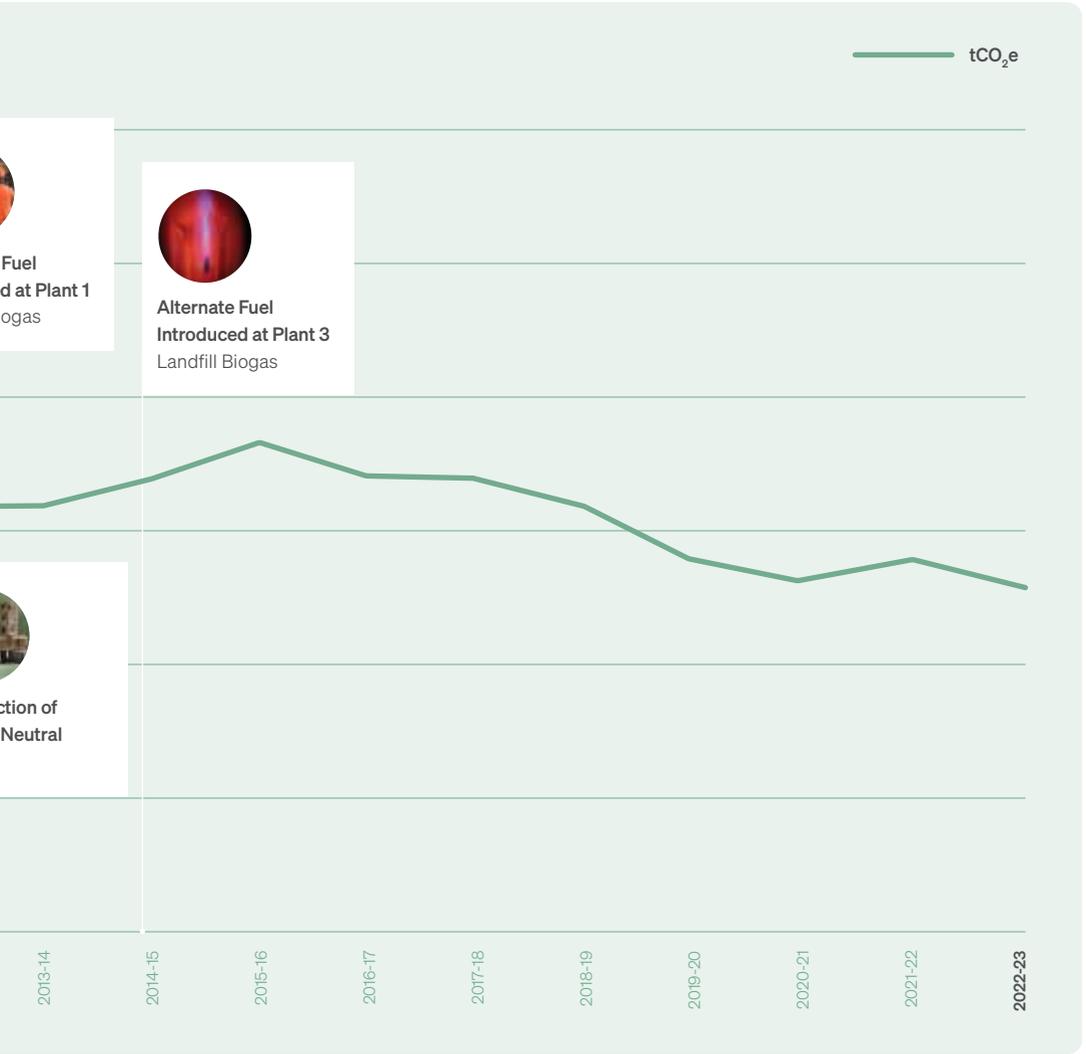
invested since 2006 in equipment upgrades, operational improvements, and carbon reduction strategies

→ IN AUSTRALIA

221,000+

tonnes lower annual carbon emissions compared to 2006

→ IN AUSTRALIA



Sustainability milestone

We're investing into developing feasible renewable biomethane opportunities and our sustainable product innovation strategies.



②

Sustainable Products



**We're moving forward with products
that support sustainable design**

We're embracing the sustainable side of the products we create in more ways than ever. Investing and innovating to reduce the carbon emissions involved with producing them – and investing in increasing the amount of biofuels in our energy mix as well.

Bricks are built to last. Bricks are low-maintenance, fireproof, recyclable, and backed by a 100-year colourfast and durability warranty.

20% of recycled content is already being used in our products in place of raw materials in Australia. And we'll continue looking for more ways to increase that number.

17%

total recycled material, used in
GB Masonry's GB Aura product range

→ IN AUSTRALIA

100 yrs

colourfast and durability
warranty on our bricks

→ IN AUSTRALIA

No toxic VOC's

our Bowral Brick, Nubrik and Austral
Bricks Rochedale products have a
Declare label, classifying them as a
healthy building product

→ IN AUSTRALIA

② Sustainable Products Fast Facts



1. Bricks are Recyclable

The durability of bricks means they are an inherently sustainable resource – they can be recycled into products such as road base and into the manufacture of new brick.

2. Embodied Energy

Upfront embodied energy is only one part of the equation. Building with a durable, resilient and low maintenance material such as brick reduces the need for expensive upkeep. Other materials like lightweight cladding require ongoing upkeep and will contribute to additional carbon emissions with maintenance and replacement.

3. Designed to Last

Bricks are inherently sustainable because they are designed to last. Unlike other materials:

- Bricks are low maintenance.
- Bricks are fireproof.
- Bricks are recyclable.
- Bricks come with a colourfast and durability warranty of up to 100 years.



4. **Recycled Raw Materials**

GB Masonry's new GB Aura range combines cement, sand and aggregates containing 17% total recycled material, including glass and ash, to craft beautiful masonry products for inspired architectural spaces.

5. **Healthy Classification**

Our Bowral Brick, Nubrik and Austral Bricks Rochedale Products have a Declare label, classifying them as a healthy building product. This means they:

- Have zero toxic Volatile Organic Compounds (VOC's), which can have negative human health impacts including headaches, lethargy, and respiratory problems like asthma.

6. **Lowering Energy Costs**

Bricks reduce heating and cooling demands. Bricks provide thermal comfort. Bricks have higher thermal mass, meaning they have an ability to effectively absorb and store heat energy keeping your home cooler in summer and warmer in winter. This is something lightweight materials cannot do.

7. **Using Solar Power**

10-20% of total energy used in the manufacturing of masonry products at our Oakdale East Masonry and Rockhampton sites is solar energy.

Did you know

We're verifying our Sustainable Products.

The health and wellbeing benefits of our products are measured by frameworks such as:

- Green Building Council of Australia (GBCA) Responsible Product Framework
- Declare

Declare. 



Sustainability milestone

Celebrating 10 Years of Australia's first and only certified carbon neutral bricks

Our Longford, Tasmania brick operation is certified carbon neutral and has avoided over **70,000 tonnes** of carbon emissions since 2013 through the use of renewable fuels.



3

Sustainable Built Environments



We're offering products that are high performing and highly sustainable to support the built environment

A building's energy efficiency extends far beyond the processes that first bring it to life. It's in how it performs in the long-term too. The bricks, masonry, stone, roofing and building systems we offer provide that high-performing and highly sustainable foundation.

Bricks and brick veneer enable higher ratings in the National House Energy Rating Scheme (NatHERS) than lightweight materials, increasing GreenStar Home ratings. And we have set a 2030 carbon target to drive reductions in embodied carbon.

A building is long term

Any net zero carbon strategy requires focus on both:

Embodied carbon

maintaining a building over its lifetime significantly adds to the total embodied energy requirement of building materials

Operational carbon

which contributes a significant proportion of a building's whole-of-life carbon footprint

③ Sustainable

Built Environments

Fast Facts



1. Carbon Reduction Target

We are pleased to announce we have developed a new carbon target:

- To achieve a 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from baseline FY22, across combined Australian and North American operations.
- This is complemented by continued investment into developing feasible renewable biomethane opportunities and our sustainable product innovation strategies.

2. Embodied Carbon Reduction

We are driving projects to even further reduce the embodied energy content of our products, including:

- Continued reduction in carbon emissions through the upgrading of our plants and equipment.
- Continued use of biofuels in our Australian energy mix which is 11% in FY23.

3. Energy Efficiency

The thermal performance of brick is superior to lightweight construction materials, and can lead to reduced operational carbon emissions over a building's lifetime.

The energy efficiency of buildings is measured on more than just manufacturing processes, it's how it performs in a lived-in home.

Building with bricks:

- Can reduce energy consumption, and therefore, reduce operational carbon emissions.



4. Outperforming other materials

Results from over 8 years of independent research proves that, compared to lightweight cladding:

- Brick homes are more energy efficient.
- The thermal mass of bricks save lifetime operational carbon emissions.

This research is based on 'A Study of the Thermal Performance' of Australian Housing, University of Newcastle, 2011-2017, and is currently being updated to changes contained in the National Construction Code 2022 residential energy efficiency provisions including a increase in the thermal performance of homes to the equivalent of a 7 Star energy rating.

5. Managing Carbon Emissions

A building is long term – if you only focus on reducing upfront carbon, you aren't truly addressing sustainability.

Any net zero carbon strategy requires focus on both:

- **Embodied carbon** maintaining a building over its lifetime significantly adds to the total embodied energy requirement of building materials. This means that when considering embodied carbon, you must look at the entire sum over the lifetime of a building.
- **Operational carbon** which contributes a significant proportion of a building's whole-of-life carbon footprint.

Building with a durable, resilient and low maintenance material such as brick reduces the need for expensive upkeep.

Did you know

Bricks can be recycled.

20% of raw materials in Australia
is recycled content.



Stoney Rise Wine Cellar

32 Daniel Robertson Hawthorn in London and Bowral Bricks in Bowral Blue



Towards 2030 In progress



We're moving forward by:

1.

We are pleased to announce we have developed a new carbon target: to achieve a 15% reduction in Scope 1 and 2 greenhouse gas emissions by 2030, from baseline FY22, across combined Australian and North American operations.

2.

Continuing to invest into developing feasible renewable biomethane opportunities.

3.

By 2030, Brickworks and our partners will invest over \$22.6 million into research and development into our innovation focus areas including: the thermal mass benefit of products, light-weighting, raw material optimisation to reduce embodied carbon and increase recycled content, sustainable design elements and product innovation.

We're moving forward by:

4.

Upgrading our Horsley Park Plant 2 manufacturing facilities. The Plant 2 operation will surpass any other brick factory in Australia in terms of technology, efficiency and output.

5.

Undergoing Thermal Research in partnership with the University of Newcastle to monitor the energy efficiency performance of 7 Star buildings.

6.

Investing a \$1.6 million research grant to collaborate with Queensland University of Technology (QUT), to create a lower embodied carbon concrete mix using local resources and waste products.



Improving energy efficiency

Australia's most advanced brick manufacturing plant





Keeping track of what happens next

While we've already made progress, we know there's still work to be done. So we'll keep looking for new opportunities to make our products and operate our business as sustainably as possible.

Join us as we keep taking steps in the right direction and together, we can build a cleaner and more sustainable future.

Learn more at

[**brickworks.com.au/sustainability**](https://brickworks.com.au/sustainability)

Backed by Brickworks

Brickworks is proud to be Australia's leading building products manufacturer.

Resources

Download our Sustainability report



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